

94004-88216
PATENTREMARKS

Reconsideration and continued examination is respectfully requested in view of the amendments and remarks.

Examiner's Telephonic Interview

The Applicants' representative wishes to thank the Examiner for his time and consideration during the telephonic interview conducted on December 11, 2003. During the interview the issues regarding new matter raised by the Examiner in his advisory action were discussed. In particular, the parties agreed that the claim limitation of an inside tube being heated along its continuous length did not introduce new matter into the application based on sufficient disclosure found in the specification as discussed in greater detail below.

Disposition of the Claims.

Claims 1-34 are pending in the instant application. Specifically, claims 1-34 were rejected as introducing new matter into the application. Further, the Examiner has maintained his rejection of claims 1-34 as being either anticipated or obvious in view of the prior art.

Formal Rejections

The Examiner has maintained his rejection of claims 1-34 under 35 U.S.C. §112, first paragraph, as introducing new matter which the Examiner alleges was not disclosed in the specification at the time the application was filed. Based on the recently issued advisory action, the Examiner has now concluded that there was support in the specification for the claim limitation that the temperature sensor is only in contact

94004-88216
PATENT

with the fluid in response to the Applicants' amendment dated October 14, 2003. See specification at page 13, lines 3-4 and Figure 7. In his advisory action, the Examiner contends that the application as originally filed does not disclose that the "inside tube is heated along its continuous length". As discussed during the Examiner's interview, sufficient support for the "continuous" claim limitation found in independent claims 1, 29 and 34 is found in the specification at Figure 6 which clearly shows that the rapidly heatable inside tube is heated through its continuous length by the hot portion. Accordingly, the Examiner is respectfully requested to withdraw his rejection of claims 1-34 under U.S.C. §112 first paragraph.

Summary of prior art rejections.

The Examiner has rejected claims 1-6, 8-11, 13-14, 17, 19, 20, 22, 24-27, and 29-34 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,501,952 to Lehrke ("Lehrke"). Further, the Examiner has rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over the Lehrke reference in view of U.S. Patent 6,068,703 to Chen et al ("Chen"). Additionally, the Examiner has rejected claims 12, 15, 16, and 18 under 35 U.S.C. §103(a) as being unpatentable over Lehrke. Further, the Examiner has rejected claim 21 under 35 U.S.C. §103(a) as being unpatentable over the Lehrke reference taken in view of U.S. Patent 6,104,011 to Juliano ("Juliano"). Finally, the Examiner has rejected claims 21, 23, and 28 under 35 U.S.C. §103(a) as being unpatentable over the Lehrke reference taken in view of the U.S. Patent 5,178,651 to Balma et al. ("Balma").

94004-88216
PATENT

Applicants' Newly Amended Claims are Not Anticipated By the
Lehrke Reference.

The Examiner has rejected claims 1-6, 8-11, 13-14, 17, 19, 20, 22, 24-27, and 29-34 as being anticipated by the Lehrke reference.

The Examiner contends that Lehrke discloses a fluid heat exchanger with an outside tube placed around an inside tube defining a small passageway of annular cross section comprising a thermistor for monitoring and controlling the temperature of the fluid. The Examiner further contends the Lehrke reference discloses that the inner tube includes a heater coil placed within the inner tube and that a helically coiled wire is wrapped around the inner tube. Additionally, the Examiner asserts that even though it is not explicitly disclosed in Lehrke, the Examiner considers a microprocessor as commonplace in the art and thus implicitly disclosed by Lehrke. Finally, the Examiner states that heating thermistors, resistance sensors and thermocouples are considered to be equivalents and therefore included in the disclosure of Lehrke.

A review of the Lehrke reference reveals that the reference discloses that the inside tube has at least two straight heater coils placed within the tube. See column 3, lines 5-10 and Figures 1 and 2. The reference further discloses that the heater coils are not capable of bending and, as such, they are not capable of placement within the "U" bend section of the tube, thereby preventing the heating element of the inside tube from directly heating this "U" bend section. Therefore, the heating element disposed within the inside tube of Lehrke does not extend through any portion of the inside tube having an axial curvature.

94004-88216
PATENT

In response, the Applicants have amended independent claims 1, 29, and 34 to recite the limitation that the inside tube of the present invention includes a hot portion for generating heat with the hot portion being continuous through the inside tube and that the inside tube has at least one portion having an axial curvature. Independent claim 19 was previously amended to include the limitation that the sensor placement of the present invention is only in contact with the fluid, and therefore not in physical contact with the heating element as disclosed in Lehrke.

The newly amended limitations of an inside tube having a hot portion for generating heat with the hot portion being continuous through the inside tube and the inside tube having at least one portion having an axial curvature is not anticipated by the Lehrke reference. In addition, the amended claim limitation of a sensor arrangement that is not in physical contact with the inside tube is also not anticipated by Lehrke. As noted above, the Lehrke reference discloses that the heater coils located within the inside tube cannot be placed within the axial curvature of the inside tube and that the thermistors of Lehrke must be in physical contact with the heating element.

Because Lehrke teaches that the heater coils within the inside tube are straight and not capable of bending around the curved section of the inside tube and that the sensor is in direct contact with the inside tube, the claims, as presently amended, are distinguished from the Lehrke reference. Therefore amended independent claims 1, 19, 29 and 34 are allowable over the Lehrke reference and the Examiner is respectfully requested to withdraw his rejection of these independent claims and

94004-88216
PATENT

indicate the allowance thereof. Finally, the Applicants respectfully request that the Examiner withdraw his rejection of dependent claims 2-6, 8-11, 13, 14, 17, 20, 22, 24-27 and 30-33 by virtue of their respective dependencies to the above independent claims.

Applicants' Newly Amended Claim 7 is Patentable Over the Lehrke Reference in View of the Chen Reference.

The Examiner has rejected dependent claim 7 under 35 U.S.C. §103(a) as being unpatentable over Lehrke in view of Chen et al.

Specifically, the Examiner contends that Lehrke discloses the invention substantially as claimed in claim 7; however, the Examiner admits that the Lehrke reference does not explicitly disclose an electropolished finish to the surfaces of the channel. As noted above, independent claim 1 which claim 7 depends therefrom has been amended to overcome the prior art cited by the Examiner. As such, dependent claim 7 should be allowable by virtue of its dependency to independent claim 1.

Based on the foregoing, the Examiner is respectfully requested to withdraw his rejection of dependent claim 7 as being unpatentable over Lehrke taken in view of Chen et al. and indicate the allowance thereof.

Applicants' Newly Amended Claims are Patentable and Not Obvious in View of the Lehrke Reference.

The Examiner has rejected dependent claims 12, 15, 16, and 18 under 35 U.S.C. §103(a) as being obvious in view of Lehrke. Specifically, it is the Examiner's contention that Lehrke discloses the invention as substantially claimed except that instead of using a raised helical portion formed from the inside

94004-88216
PATENT

tube as is presently claimed, Lehrke uses a separate helical wire interposed between the inner and outer tubes which creates a raised region. The Examiner concludes that it would have been obvious to make the helical wire an integral part of the tube surface.

As noted above, claim 1 has been amended in order to distinguish the fluid heat exchanger of the present invention from the Lehrke reference. Therefore, dependent claims 12, 15, 16, and 18 would be allowable based upon their respective dependencies upon independent claim 1 and the Examiner is respectfully requested to indicate the allowance thereof.

Applicant's Newly Amended Claim 21 is Patentable Over the Lehrke Reference In View of the Juliano Reference.

The Examiner has rejected dependent claim 21 under 35 U.S.C. §103(a) as being unpatentable over Lehrke in view of Juliano.

Specifically, the Examiner contends that Lehrke discloses the invention substantially as claimed except that Lehrke does not explicitly disclose a temperature sensor within the inner tube as is disclosed by Juliano. As noted above, independent claim 19 which claim 21 depends therefrom has been amended to overcome the prior art cited by the Examiner. Accordingly, claim 21 is not obvious over Lehrke taken in view of Juliano.

Based on the foregoing, the Examiner is respectfully requested to withdraw his rejection of dependent claim 21 as being unpatentable over Lehrke taken in view of Juliano and indicate the allowance thereof.

94004-88216
PATENT

Claims 21, 23, and 28 are Patentable Over the Lehrke Reference
In View Of the Balma Reference.

The Examiner has rejected dependent claims 21, 23, and 28 under 35 U.S.C. §103(a) as being unpatentable over Lehrke in view of Balma et al.

Specifically, the Examiner contends that Lehrke discloses, the invention substantially as claimed; however the Examiner admits the Lehrke reference does not show the sensor placement in a raised region of the outside tube as is depicted by Balma.

As noted above, independent claim 19 to which dependent claim 28 depends therefrom has been amended to overcome the prior art. Therefore, dependent claim 28 would be allowable based upon its respective dependency from independent claim 19.

Conclusion

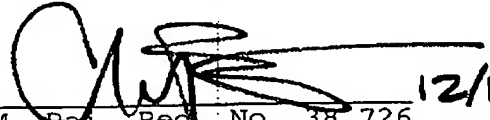
By the present response, the Applicants have provided remarks and made amendments to the claims that distinguish the claimed invention from the cited prior art. Accordingly, the application is in a condition for allowance and expeditious notice thereof is earnestly solicited.

If the Examiner has any comments or suggestions which would place the application in still better condition for allowance, he is respectfully requested to call the undersigned attorney collect.

94004-88216

PATENT

Respectfully submitted,



12/12/03

Ari M. Bai, Reg. No. 38,726

J. Damon Ashcraft, Reg. No. 51,024

Greensfelder, Hemker & Gale, P.C.

10 S. Broadway, Suite 2000

St. Louis, Missouri 63102

314-241-9090

Attorneys for Applicants